NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

Access Road
(FT)
No. 560

Definition

A travelway constructed as part of a conservation plan.

Purpose

To provide a fixed route for travel for moving livestock, produce, equipment, and supplies; and to provide access for proper operation, maintenance, and management of conservation enterprises while controlling runoff to prevent erosion and maintain or improve water quality.

Conditions Where Practice Applies

Where access is needed from a private or public road or highway to a conservation enterprise or measure, or where travelways are needed in a planned land use area.

Federal, State, and Local Laws[1]

Design and construction activities shall comply with all federal, state, and local laws, rules, and regulations governing pollution abatement, health, and safety. The owner or operator shall be responsible for securing all required permits or approvals and for performing in accordance with such laws and regulations. NRCS employees are not to assume responsibility for procuring these permits, rights, or approvals, or for enforcing laws and regulations. NRCS may provide the landowner or operator with technical information needed to obtain the required rights or approvals to construct, operate, and maintain the practice.

Permits may be required from the following agencies:

1. ***West Virginia Department of Health***
2. ***West Virginia Department of Agriculture***
3. ***West Virginia Department of Highways***

Planning Considerations

Water Quantity

1. Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation and ground water recharge.

2. Effects of snowcatch and melt on water budget components.

3. Effects on downstream flows or aquifers that would affect other water uses or users.

4. Effects on the volume of and timing of downstream flow to prohibit undesirable environmental, social, or economic effects.

Water Quality

1. Short-term and construction-related effects of this practice on the quality of on site downstream water courses.

2. Effects on erosion and the movement of sediment, pathogens, and soluble and sediment-attached substances that would be carried by runoff.

3. Effects on the visual quality of water resources.

4. Effects on the movement of dissolved substances below the root zone toward the ground water.

5. Effects on wetlands and water-related wildlife habitats that would be associated with the practice.

Investigations and Surveys

Adequate surveys shall be done to topographically locate the road, compute quantities, and provide layout information. Soils investigations shall be completed in sufficient detail and depth to design cuts, fills, and assure adequate borrow.

Design Criteria

Access roads shall be designed to serve the enterprise or planned use with the expected vehicular or equipment traffic. The type of vehicle or equipment, speed, loads, climatic, and other conditions under which vehicles and equipment are expected to operate need to be considered.

Visual resources and environmental values shall be considered in planning and designing the road system.

Access roads range from seldom used trails to all-weather roads heavily used by the public and built to very high standards. Some trails facilitate control of forest fires, are used for logging, serve as access to remote areas for recreation, or are used for maintenance of facilities.

Where general public use is anticipated, roads should be designed to meet applicable federal, state, or local criteria.

Sound engineering practices shall be followed to insure that the road meets the requirements of its intended use and that maintenance requirements are in line with operating budgets.

Location. Roads shall be located to serve the purpose intended, to facilitate the control and disposal of water, to control or reduce erosion, to make the best use of topographic features, and to include scenic vistas where possible. The roads should generally follow natural contours and slopes to minimize disturbance of drainage patterns. Roads should be located where they can be maintained and so water management problems are not created. To reduce pollution, roads should not be located too near watercourses.

Alignment. The gradient and vertical and horizontal alignment shall be adapted to the intensity of use, mode of travel, and the level of development.

Grades normally should not exceed 10 percent except for short lengths, but maximum grades of 20 percent may be used if necessary for special uses.

Width. The minimum width of the roadbed is 14 feet for one-way traffic and 20 feet for two-way traffic. Single-lane logging or special-purpose roads have a minimum width of 10 feet, with greater widths at curves and turnouts. The two-way traffic width shall be increased approximately 4 feet for trailer traffic.

The minimum tread width is 10 feet for one-way traffic and 15 feet for two-way traffic. The tread width for two-way traffic shall be increased approximately 4 feet for trailer traffic.

The minimum shoulder width is 2 feet on each side of the tread width.

Where turnouts are used, road width shall be increased to a minimum of 20 feet for a distance of 30 feet.

Side slopes. All cuts and fills shall have side slopes designed to be stable for the particular site conditions.

Areas with geological conditions and soils subject to slides shall be avoided or treated to prevent slides.

Drainage. The type of drainage structure used will depend on the type of enterprise and runoff conditions. Culverts, bridges, or grade dips for water management shall be provided at all natural drainageways. The capacity and design shall be consistent with sound engineering principles and shall be adequate for the class of vehicle, type of road, development, or use. ***All culverts, and grade dips, shall be adequate to contain the runoff from a 2-year frequency storm.***

Culverts shall be a minimum of 12 inches in diameter and installed at a depth at least 12 inches below the subgrade of the road.

Bridges shall have the capacity to carry the runoff from a 25-year frequency storm except for infrequently used roads where a 5-yr frequency storm may be used.

Roadside ditches shall be adequate to provide surface drainage for the roadway and deep enough, as needed to serve as outlets for subsurface drainage. Channels shall be designed to be on stable grades or protected with structures or linings for stability.

Water breaks or bars may be used to control surface runoff on low-intensity use forest or similar roads.

Surfacing. Access roads shall be given a wearing course or surface treatment if required by traffic needs, climate, erosion control, or dust control. The type of treatment depends on local conditions, available materials, and the existing road base. If none of these factors nor the volume of traffic is a problem, no special treatment of the surface is required.

Unsurfaced roads may require controlled access to prevent damage or hazardous conditions during adverse climatic conditions.

Toxic and acid-forming materials shall not be used on roads. This should not be construed to prohibit use of chemicals for dust control and snow and ice removal.

Gravel Roads. ***The minimum thickness of the gravel base course shall be 4 inches. Where the road is being constructed over fine-grained soils, the minimum thickness shall be increased to 6 inches. The surfacing material may be crushed stone, gravel, or other approved substances. Where stone or gravel is used, the material shall be reasonably well-graded with a maximum size of 1.5 inches and sufficient fines to provide a firm surface. The use of a geotextile fabric between the natural soil and the gravel is recommended.***

Paved Roads. ***Surfacing material shall be a consolidated wearing course such as concrete, or compacted bituminous road mix. Minimum thickness over the base course shall be as follows:***

Concrete - 4 inches, Bituminous - 2 inches.

Base course materials shall have a maximum diameter of 2.5 inches, be reasonably well-graded, and compact to a dense, durable support layer. Minimum thickness of the base course shall be 6 inches after compaction. The minimum design wheel load for surfaced roads shall be 4,000 pounds. A geotextile fabric between the base course and the natural soil is recommended. The type and kind of geotextile fabric shall be designated for the particular site.

Traffic safety. Passing lanes, turnouts, guardrails, signs, and other facilities as needed for safe traffic flow shall be provided. Traffic safety shall be a prime factor in selecting the angle and grade of the intersection with public highways. Preferably, the angles shall be not less than 85 degrees. The public highway shall be entered either at the top of a hill or far enough from the top or a curve to provide visibility and a safe sight distance. The clear sight distance to each side shall be at least 300 feet if site conditions permit.

Erosion control. If soil and climatic conditions are favorable, roadbanks and disturbed areas shall be vegetated as soon as possible and skid trails, landings, logging, and similar roads shall be vegetated after harvesting or seasonal use is completed. If the use of vegetation is precluded and protection against erosion is needed, protection shall be provided by nonvegetative materials, such as gravel or mulches.

Roadside ditches, grade dips, and drainage structure inlets and outlets should be designed to be stable without protection. If protection is needed riprap or other similar materials shall be used.

General. **The subgrade established for the road shall be crowned at least 0.5 inch per foot of width, except where there is a grade dip for drainage.**

An attempt will be made to balance cuts and fills.

Watercourses and water quality shall be protected during and after construction by erosion-control facilities and maintenance. Filter strips, sediment and water control basins, and other conservation practices shall be used and maintained as needed.

Dead end roads shall be provided with a turnaround within 50 feet of the end of the road. In some areas turnarounds may also be desirable for stream, lake, recreation, or other access purposes.

Parking space as needed shall be provided to keep vehicles off the road or from being parked in undesirable locations.

Where there is no NRCS standard or specification to provide criteria and control for any component of an access road, the standards and specifications of the WV-DOH shall be used.

Plans and Specifications

Plans and specifications for constructing access roads shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

Specifications may be developed from NEH-20 Series, 700 Series, or other applicable material.

Operation and Maintenance

An operation and maintenance plan shall be developed that is consistent with the purpose of the access road, its intended life, safety requirements, and design criteria. Unsurfaced roads shall be graded periodically to maintain a uniform surface and to facilitate drainage.

Gravel roads shall be graded and additional gravel added as needed to maintain the original cross section. Paved roads shall be maintained by patching potholes and deteriorated surfaces with original material. Roads shall be resurfaced as needed.

Roadside ditches and drainage structures shall be checked regularly to insure that they do not become clogged with silt or debris. Silt and debris shall be removed as needed to maintain the original capacity.

Seeded areas adjacent to the road shall be checked periodically to insure that a vigorous stand of vegetation is maintained.

[1]Bold italics is information added to the National standard by West Virginia.

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE GENERAL SPECIFICATIONS

Access Road
(FT)
No. 560

Construction operations shall be carried out in such a manner that erosion and air and water pollution are minimized and held within legal limits. The completed job shall present a workmanlike finish. Construction shall be according to the following requirements as specified for the job:

1. Trees, stumps, roots, brush, weeds, and other objectionable material shall be removed from the work area.
2. Unsuitable material shall be removed from the roadbed area.
3. Grading, subgrade preparation, and compaction shall be done as needed.
4. Surfacing shall be done as needed.
5. Roads shall be planned and laid out according to good landscape management principles.

A protective cover of vegetation shall be established on all areas not surfaced or otherwise protected.

All material delivered to the site shall be inspected and verified to be new or, if used, to be in new condition. All physical requirements of the material (size, type, gradation, etc.) shall be verified.

All materials shall be installed according to the applicable specifications, manufacturers recommendations, or this standard.

Gravel Base Course

Spreading shall be in loose 4 inch thick layers before compaction.

Compaction will be accomplished by rolling with a roller weighing at least 8 tons until the material does not creep or wave ahead of the roller. Rolling shall proceed from sides to the middle, except on super elevated curves, where the rolling will be done inside to outside of the curve.

A road which will not be surfaced with paving may be placed in 2-inch thick layers and consolidated by traffic over a period of time until the required thickness is built up.

Paved Wearing Course

Paving shall be installed to the line and grade shown on the drawings and in accordance with the specifications. When tested with a 10-foot straight edge or a crown board the paved surface shall not show a deviation of more than 1 inch from design grade.

Paving shall not be placed on wet subgrade or during rainy weather.